

Natural Resources

FY 2000

Large Installation

*Marine Corps Base
Camp Lejeune*

MAJOR ACHIEVEMENTS

Initiated management plan for red-cockaded woodpeckers with 59 active clusters, 8 of them new ones.

Initiated Base Sedimentation, Erosion, and Land Stabilization Working Group to unify Base efforts to preserve the land for future military training.

Implemented aggressive Quality Deer Management Program on 26,000 acres to improve deer herd health and prevent overuse of available forage.

Planted 210 acres of food plots with forage for wildlife, and revitalized 8 of the 11 fishing ponds by stocking ponds, controlling aquatic weeds, improving shoreline access, and determining predator-prey ratios.

Promoted conservation education in elementary schools, with university students, and Camp Lejeune training units.

The Base red-cockaded woodpecker plan, finalized and implemented by the Fish and Wildlife Division in FY00 protects the future of the woodpecker. Its current 59 active clusters are referred to as the fastest growing small population in the country.

A new Sedimentation, Erosion, and Land Stabilization working Group has begun stabilizing 12 sites as well as 1 mile of beachfront with sand fencing.

Throughout the Base, a new quality Deer Management program was established to produce a quality whitetail herd and a better hunting experience at Camp Lejeune.

Introduction

The role of Marine Corps Base, Camp Lejeune in protecting the environment and conserving natural resources began in the early 1940s when the Base was first developed. The same soil and water resources that made the newly acquired area an ideal amphibious warfare training facility also demanded extreme care to

ensure its continued viability. Camp Lejeune thus adopted progressive management practices at the earliest stages of development. This has yielded a Natural Resources Conservation Program that enhances the native biodiversity on Camp Lejeune, while sustaining the Base's primary mission of training U.S. Marines.

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GENERAL SITE DESCRIPTION AND ACREAGE

Camp Lejeune is located within Onslow County in the White Oak River Basin of the lower coastal plain of southeastern North Carolina (*Exhibit 1*). The Base is composed of 153,000 acres, containing 26,000 acres of surface water and 127,000 acres of land varying in elevation from sea level to 70 feet above sea level. Approximately 14,000 acres of land have been developed for administration, maintenance, logistics, and personnel support facilities. There are over 6,800 buildings and 450 miles of roads at Camp Lejeune, with the remaining land used primarily for military training.

NATURAL FEATURES

The 92-mile perimeter of Camp Lejeune includes 11 miles of Atlantic Ocean frontage, consisting of sandy beaches and a fragile barrier island system, separated from the mainland by salt marshes, small bays, and the Atlantic Intercoastal Waterway.

The annual rainfall in the area averages 52 inches, and the growing season lasts approximately 230 days. Seasonal weather ranges from hot and humid during the summer to a mild winter, with the temperature rarely dropping below freezing.



Exhibit 1. Camp Lejeune is located on the southeast coast of North Carolina and includes 11 miles of beach on the Atlantic Ocean, making environmental protection

Upland sites are characterized by highly productive pine and mixed pine/hardwood forests, while the bottomlands typically have wide flood plains with cypress and gum swamps (*Exhibit 2*) and headwaters composed of pocosins.

ENVIRONMENTAL MANAGEMENT PROGRAM

At Camp Lejeune, natural resources conservation has been in progress for a half-century. Consequently, when national concerns over environmental quality emerged in the late 1960s and early 1970s, the Base's existing conservation initiatives provided a solid foundation for develop-

ing a comprehensive environmental program.

The Environmental Management Department which implements and oversees the program, was established in 1989 and has become a model organization within DoD.

Exhibit 2 Mossy Pond



DEVELOPMENT OF AN INTEGRATED NATURAL RESOURCE MANAGEMENT PLAN

In response to the passage of the Sikes Act Improvement Act of 1997, Marine Corps Base, Camp Lejeune has initiated the development of an Integrated Natural Resources Management Plan (INRMP). Camp Lejeune has taken on a massive effort to integrate all natural resources management in support of the Marine Corps training mission with the best available scientific information, soliciting the assistance and support from other local, state, federal, and non-governmental organizations. We've invited these organizations to participate as designees in a Stakeholder Issues Group whose primary function will be to identify issues that may be addressed in the plan.

Representatives from these organizations comprise the INRMP Stakeholder Issues group which serves to identify areas of natural resource management on Camp Lejeune that may require a new or modified approach. The identified issues were then presented to the Base INRMP Working Group, composed of personnel representing each Marine Corps Base operational department. Once in agreement that these issues warranted further examination, they were passed on to an

Interdisciplinary Team made up of natural resource professionals. The team generates alternative approaches to resolve the issue which will ultimately be reviewed by both the Base Working Group and the Stakeholder Issues Group.

Concurrent with the development of new natural resource management goals and objectives, new and efficient ways to integrate conservation activities with base and training operations were identified and promoted through the Base INRMP Working Group. For example, integrating prescribed fire goals with training needs will help increase the number of acres burned each year. This will both improve training area condition and enhance the biological resources on Camp Lejeune.

In resolving both natural resource and Base integration issues, Camp Lejeune will implement an ecosystem management approach built on the premise that military use of the resources is sustainable if ecosystem integrity is the ultimate goal of natural resource management. By identifying, restoring and maintaining natural communities, the ecosystems of Camp Lejeune will become resilient to disturbances and continue to provide for a diverse training environment for future generations of Marines.

COOPERATIVE AGREEMENTS

Natural resources conservation is promoted through several cooperative agreements with state and federal conservation organizations. Cooperative agreements for wildland fire management assistance with the North Carolina Forest Service and U.S. Forest Service were updated in 1996. Cooperative agreements for the conservation of fish and wildlife resources with the U.S. Fish and Wildlife Service and the North Carolina Wildlife Resources Commission were updated in 1995. A 1987 agreement with the Onslow County Soil and Water Conservation District provides for assistance from the U.S. Natural Resources Conservation Service.

ENVIRONMENTAL IMPACT ASSESSMENT ORGANIZATION

A prominent feature of Camp Lejeune's Natural Resources Conservation Program is the high command visibility and operation of the Environmental Impact Review Board and the supporting Environmental Impact Working Group.

Using a systematic, interdisciplinary approach, as required by the National Environmental Policy Act (NEPA), the Environmental Impact Working Group reviews proposed actions for potential impact on the environment and makes recommendations to the Environmental Impact Review Board as to the required level of environmental documentation. The review process considers both the natural and cultural resources

and socioeconomic factors, helping the Command make informed decisions that take into account environmental effects and the actions necessary to protect, restore, and enhance the environment.

PROGRAM SUMMARY

Camp Lejeune has two primary areas of concern in its Natural Resources Conservation Program: fish and wildlife management and forest management.

Fish & Wildlife Management

For the past 30 years, Camp Lejeune has conducted one of the preeminent fish and wildlife management programs within DoD, and recent events have helped advance the program further. Unique resources found in the 40,050-acre Greater Sandy Run Area are being inventoried and evaluated by the Fish & Wildlife Division in order to identify the best techniques for restoring and maintaining natural communities found in this vast training area. Innovative technologies are applied to resource management in this vast and sometimes inhospitable landscape, these include 1) aerial surveys for RCW, 2) remote hydrologic monitoring, and 3) radiotelemetry for the study of wildlife population dynamics.

Endangered Species Protection

Camp Lejeune is home to several endangered animal

species. The Fish & Wildlife Division has programs in place to protect these endangered species, highlights of which are presented in the following text.

Red-Cockaded Woodpecker

Since 1985, Camp Lejeune has conducted research on the red-cockaded woodpecker (RCW). In addition, forest management practices lengthened timber rotation and prescribed fire have also played a key role in the success of the RCW at Camp Lejeune. The strategic placement of provisioned recruitment clusters has further enhanced the remarkable growth of Camp Lejeune's RCW sub-population.

RCW growth on Camp Lejeune has been phenomenal with 49 breeding pairs nesting in during the year 2000. This is an 81.5% increase over a 10 year period.

The RCW management plan was approved by the Commanding General and the U.S. Fish and Wildlife Service with which the Base partnered during development of the program. The single-species plan integrates well with the ecosystem approach used at Camp Lejeune since the conditions favored by the RCW provide habitat for other species of concern (e.g., Bachman's sparrow and eastern fox squirrel) and the federally endangered rough-leaved loosestrife.

Bald Eagle in Year 2000

In the year 2000, Camp Lejeune had its first documented Bald Eagle nest which successfully produced two offspring.

Rough-Leaved Loosestrife

Camp Lejeune supports 25 rough-leaved loosestrife sites in wet pine flatwood habitats and along power line rights-of-way (*Exhibit 3*). Habitat management consisting of growing season burns and prohibition of ground disturbing activities New rough-leaved loosestrife sites continue to be discovered during field surveys in the Greater Sandy Run Area.

Hunting and Fishing Programs

The use of fish and wildlife resources at Camp Lejeune by military and civilian personnel is a significant part of the Natural Resources Conservation Program. Camp Lejeune has been listed as one of the top 10 military installations in the United States for deer hunting with over 1,000 deer taken annually (*Exhibit 4*). The sound, scientific management of hunting and

Exhibit 3 Rough-leaved loosestrife thrives on Camp Lejeune



fishing programs exhibited by Camp Lejeune is necessary to maintain healthy populations of game species that meet recreational demand and minimize human and wildlife conflicts.

Wetlands Mitigation Bank

Camp Lejeune developed the Greater Sandy Run Mitigation Bank, one of the largest wetlands restoration efforts ever undertaken within DoD, to support training range development, with the U.S. Army Corps of Engineers, the Environmental Protection

Short- and Long-Term Ecosystem Management

Camp Lejeune practices ecosystem management with a long-range focus on the desired condition of the forest lands so that soil productivity, biodiversity, landscape patterns, and ecological processes are maintained. Examples of ongoing efforts are the use of long (80- to 120-year) timber rotations and processes that mimic natural disturbances, such as growing season burns (12,000 acres during the reporting period). Another example is the reintroduction of longleaf pine into its former range, in an effort to establish and maintain the biodiversity of the longleaf/wire grass ecosystem.

Exhibit 4 White-tailed deer are a popular big-game animal on Camp Lejeune



A Quality Deer Management program established in FY99 on portions of the Base was well received. Its effectiveness will determine future management for other hunting areas.

Accomplishments

Camp Lejeune has had many accomplishments in the area of natural resources conservation. Highlights of FYs 1997-99 are listed below:

- * Wetlands mitigation bank
- * Short and Long term ecosystem management
- * Natural resources conserva-

Agency (EPA), the U.S. Fish and Wildlife Service, and the State of North Carolina.

Camp Lejeune's mitigation bank includes approximately 1,300 acres of pocosin, hardwood bottom, and wet mineral pine flats. The bank will restore a large pocosin in the region, only 31 percent of which remains in its natural state. The Wetland Mitigation Banking Instrument that formally establishes the Greater Sandy Run Wetland Mitigation Bank was executed on 6 November 2000.

Natural Resources Conservation/Land Use Management

Marine Corps Base, Camp Lejeune has initiated development of an Integrated Natural Resources Management Plan (INRMP) in cooperation with other federal and state agencies that reflects mutual agreement concerning conservation, protection, and management of fish and wildlife resources. The INRMP will incorporate the principles of ecosystem management and will be implemented in FY 2001.

Camp Lejeune's Integrated Natural Resource Management Plan will address all land use issues ranging from endangered species management to outdoor recreation. Camp Lejeune is coordinating development of the plan with the United States Forest Service through the Army Environmental Center in Aberdeen,

Maryland, the United States Fish and Wildlife Service, the North Carolina Department of Environment and Natural Resources and other agencies. Efforts so far have led to the adoption of the U.S. Forests Services ecological classification system by Camp Lejeune to facilitate communication between other federal land managers. Dialogue with The Nature Conservancy and other non-government organizations as well as neighboring state and federal landowners has been a catalyst for discussion about opportunities for regional integrated management initiatives.

Camp Lejeune will focus its natural resource management efforts on maintaining and improving the sustainability and native biodiversity of ecosystems, while supporting the military mission. Participation of state and federal agencies, regional ecosystem stakeholders, and subject matter experts will help identify issues and develop a scientifically sound basis for ecosystem management.

Fish and Wildlife Management

The following fish and wildlife management efforts have been undertaken as part of Camp Lejeune's Natural Resources Conservation Program:

- ▣ Management of threatened, endangered, and rare species
- ▣ Black Bear Study
- ▣ Water Fowl Initiatives
- ▣ Colonial shore bird monitoring

These efforts are described below.

Threatened, Endangered, and Rare Species

Camp Lejeune administers a threatened and endangered species program that has been developed in accordance with the Endangered Species Act of 1973. Federally listed species residing at Camp Lejeune include the red-cockaded woodpecker, rough-leaved loosestrife, seabeach amaranth, and Atlantic loggerhead and green sea turtles. Other federally listed species that can be found on the Base include the bald eagle and the piping plover. The Base also protects federally listed species through the guidelines contained in its Base orders and long-range Integrated Natural Resources Management Plan that will be implemented in 2002. Highlights of this program during FY 2000 follow:

Red-Cockaded Woodpecker Management Plan. As mentioned previously, Camp Lejeune is home to the country's fastest growing RCW population (*Exhibit 5*). The management plan initiated in FY 00 by the Commanding General, incorporates Base-wide population objectives, current and future military land use requirements, and existing and potential woodpecker foraging habitat for effective management through the 21st century. There have been 8 new RCW clusters on Camp Lejeune in FY 00. A Base-wide foraging habitat inventory was completed in FY 00.

Loggerhead and Green Sea Turtle Program. Camp Lejeune is issued an annual permit by the North Carolina Wildlife Resources Commission to conduct management activities for protecting loggerhead and green sea turtle nests on Onslow Beach. This permit authorizes the tagging and measurement of adults and relocation of nests threatened by erosion, tides, extreme predation, or military training activities. Nests may be moved only within 6 hours of egg laying to a safe beach location. Nests are monitored daily and hatching success is documented.

In addition, 29 aerial surveys are conducted annually during peak nesting periods over impact area beaches and offshore to monitor sea turtle nesting activity. Annual reports on these findings are submitted to the U.S. Fish and Wildlife Service, the North Carolina Wildlife Resources Commission, and the National Marine Fisheries Service.

Exhibit 5. The Federally endangered RCW exists on training areas throughout Camp Lejeune



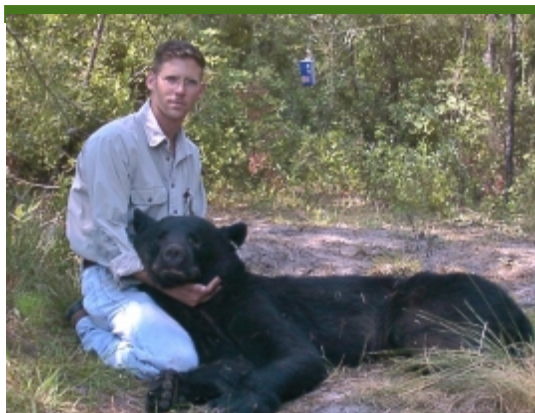


Exhibit 6. The Greater Sandy Run Pocosin provides an excellent area in which to conduct black bear studies.

Lejeune and place those efforts into a regional context. Representatives from the U.S. Fish and Wildlife Service, North Carolina Wildlife Resources Commission, Atlantic Coast Joint Venture of the North American Waterfowl Management Plan and Ducks Unlimited participated in the workshop.

Exhibit 7. Marines lend a hand for Waterfowl Management



Black Bear Study In concert with the Southern Appalachian Field Laboratory, USGS and the University of Tennessee, Camp Lejeune re-initiated research on black bears on the GSRA (*Exhibit 6*). Acquisition. Topics of this recent effort include the development of a habitat model which can be used to predict bear response to vegetative and human induced landscape changes, refinement and application of the latest scientific methods of using DNA analyses to model population dynamics, and a harvest management model that will be used by Base and North Carolina Wildlife Resources Commission biologists to set harvest objectives for Onslow County, North Carolina.

Waterfowl Initiatives

During the fall of 2000, Camp Lejeune hosted a mini-workshop on waterfowl management with various state, Federal and private organizations that have a stake in local and regional waterfowl populations. The purpose of the workshop was to discuss future waterfowl enhancement activities aboard Camp

During the period 1999-2000, Camp Lejeune's wood duck nest box management program was revitalized through volunteer efforts. Products of this renewed effort included maintenance and restoration of 80 nesting boxes and identification of new potential nesting/resting habitats. Through these efforts, a new moist-soil impoundment was identified and created (*Exhibit 7*.) which will provide valuable nesting and foraging habitat for resident wood ducks and various migratory waterfowl species and shore birds.

Community Relations/Education

Camp Lejeune has used several methods of communication for its Natural Resources Conservation Program. Highlights of the program were as follows:

- ▣ Involvement in Scouts and other groups
- ▣ Involvement in school programs
- ▣ Presentations and publications

These efforts are discussed below.

Involvement in Scouts and Other Programs

Camp Lejeune EMD staff stress safety, ethics, and self-reliance among the Base's young people at every opportunity. Effective outlets for these types of training are found in the Scouting program and the Camp Lejeune Rod and Gun Club. Our involvement in the Scouting program includes teaching camping and woodsmanship skills and improving the scouts' knowledge and appreciation of natural resources conservation (*Exhibit 8*.).

Exhibit 8. Scouts participation in the annual dune restoration project using Christmas trees on Onslow Beach.



Involvement in School Programs

Camp Lejeune sponsors several field trips and classroom presentations annually, including Earth Day programs. These events are attended by Base schools, local community schools, the Girl Scouts and Boy Scouts, and community colleges. Presentations are given on endangered species, game and non-game wildlife, coastal plain ecology, archaeology, soils, wetlands, and forestry and wildlife management. Camp Lejeune also has hosted professional-level field trips for colleges and universities, the North Carolina Forest Service foresters, and the North Carolina Forestry Foundation.

Presentations and Publications

Camp Lejeune has presented slide and videotape programs to various on- and off-Base civic organizations and other groups interested in natural resources conservation. Many articles about natural resources conservation have appeared in the Camp Lejeune newspaper, *The Globe*, and in national DoD publications. EMD also produces radio spot and makes appearances on the Base's closed-circuit television station and, with the cooperation of the Consolidated Public Affairs Officer, conducts public meetings and interviews to keep the public informed about conservation issues.

Camp Lejeune joined seven state and regional organizations in hosting and cosponsoring the Renew America National Teleconference,

"Environmentally Sustainable Communities: A National Town Meeting." The day-long conference on sustainable development featured speakers from throughout the state, with panel discussions focusing on waste reduction, water conservation and reuse, economic development, and land use planning. Priority implementation actions were identified to promote the development of a healthy environment and sound economy in Onslow County and the surrounding region.

Conclusion

Camp Lejeune has set the environmental standard for Marines Corps excellence in sustainable and scientifically based natural resources management by implementing proactive and effective programs for ecosystem management and biodiversity. Our success is attributed to the formation of effective partnerships with Base personnel, both civilian and military; federal and state natural resources organizations; academic institutions; and environmental advocacy groups; and by effective public outreach efforts.

We have sought new methods of accomplishing old tasks and have accepted the challenge of implementing innovative techniques. Our innovations have reaped significant rewards, as seen in our wildland fire behavior model, our leadership and development of a DoD Wildland Fire Management policy, our wetlands mitigation bank, and our Geographic Information System program for hurricane disaster response and natural resource damage assessment. Camp Lejeune understands

that DoD installations have a unique opportunity as well as a responsibility to take the lead in demonstrating commitment to natural resource conservation. In so doing, we optimize our service to both our country and our community. In the historic tradition of the Marine Corps, Camp Lejeune is proud to set the pace for others in natural resources management.

Information to be read during award ceremony

Camp Lejeune excelled in Natural Resources by performance of the following:

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Initiated the Base Sedimentation, Erosion, and Land Stabilization Working Group to unify Base efforts to preserve the land for future military training.

Implemented an aggressive Quality Deer Management Program on 26,000 acres to improve deer herd health and prevent overuse of available forage.

Planted 210 acres of food plots with forage for wildlife, and revitalized 8 of the 11 fishing ponds by stocking ponds, controlling aquatic weeds, improving shoreline access, and determining predator-prey ratios.

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